



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,506	08/22/2003	Toshihiro Tsumori	5576-151	9660

7590 03/03/2005

Myers Bigel Sibley & Sajovec
Post Office Box 37428
Raleigh, NC 27627

EXAMINER

FALASCO, LOUIS V

ART UNIT	PAPER NUMBER
----------	--------------

1773

DATE MAILED: 03/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/646,506

Applicant(s)

TSUMORI, TOSHIHIRO

Examiner

Louis Falasco

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 3-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

PAPERS RECEIVED

Applicants Drawing corrections filed on January 19, 2005 are acknowledged.

The Declaration under Rule 132 (now 37 CFR 1.132) filed on January 19, 2005 is acknowledged.

The Remarks in response the previous Office action filed on January 19, 2005 are acknowledged.

CLAIMS

The claims are 1 to 12.

Claims 3-12 have been withdrawn from further consideration by the examiner in the previous Office action, 37 CFR 1.142(b), as being drawn to a non-elected invention.

The claims under consideration remain 1 and 2.

ACTIONS ON MERITS

Statutory Basis

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Rejections

1. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Lambeth et al** (US 6248416) with **Futamoto et al** (US 6686070) alone or in view of either one of **Yamamoto et al** (US 6638648) or **Takano et al** (US 6356406).

Lambeth et al teaches a magnetic recording disk medium that includes a *Si* single crystal substrate, a metallic underlayer and a soft magnetic layer.

- **Lambeth et al** shows magnetic recording disk medium, including perpendicular magnetic recording media, including a single crystal *Si* substrate (col. 8 lns 1-5) with a surface roughness (*Rms*) within the claimed 1nm - 1x10³ nm limits (col. 15 ln 66 - col. 16 ln 3), and shows this to solve the problem of noise spikes (col. 7 ln 10).
- **Lambeth et al** also shows an underlayer composed of the materials included by the instant claims (col. 7 lns 62-64) having the thickness within the instant claim limits (col. 16 lns 48-50, Table II).
- **Lambeth et al** also includes a soft magnetic layer (col. 8 lns 61,62 and col. 24 lns 38-42) in the magnetic recording disk medium.

Lambeth et al differs from what has been claimed by not expressing dimensions (diameter and thickness) of the magnetic recording disk substrate, underlayer and soft magnetic layer. However, **Futamoto et al** shows that the specific thickness of magnetic layers and diameter as conventional in the art - as in Ex. 1, 4 & 5 and at col. 11 lns 15-28.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to adopt the **Futamoto et al** size preferences for magnetic recording

medium in the **Lambeth et al** magnetic recording medium for providing the medium with sufficient sensitivity for recording and play back and would have been motivated to adopt the **Futamoto et al** preferences for magnetic medium with the expectation of increasing the density while decreasing recording media noise as illustrated in Figs. 4, 5 and 8 and at col. 2 lns 40-60 in **Futamoto et al**.

While **Lambeth et al** and **Futamoto et al** do not specify a product of 'plating', the product would be identical or only slightly different in structure since precisely formed magnetic recording media coatings have been known to be produced by sputtering. Additionally, 'sputtering' is also identified in the art as 'ionic plating' as evident from reference previously cited as pointed out in the previous Office action (*Texas Digital Systems Inc. v. Telegenix Inc.* 64 USPQ2D 1812 (CA FC 2002)). Neither **Lambeth et al** nor **Futamoto et al** specify a product of 'plating'¹. However, a product of plating would have plainly been a matter of routine choice as evident from **Yamamoto et al** and **Takano et al**. **Yamamoto et al** and **Takano et al** teach the increased effectiveness especially for applying the instant claimed material **Cu** over a **Si** substrate - col. 13 lns 56 - 61 of **Yamamoto et al** or col. 13 ln 61 of **Takano et al**.

¹ It's well established in patent law that when a prima face case of obviousness has been established and rational and evidence tending to show inherency set forth the burden of persuasion is on applicants to show that the claimed product exhibited unexpected properties compared with that of the prior art. *Ex parte Gray*, 10 USPQ2d 1922 (Bd. Pat. App. & Inter. 1989).

It would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to adopt **Yamamoto et al** or **Takano** product of plating for a magnetic recording medium. One skilled in the art would have been motivated to adopt the **Yamamoto et al** or **Takano** product for magnetic medium with the expectation of increasing the density and precision of the recording media (**Yamamoto et al** col. 1 lns 13-15 and 45-50 or **Takano** col. 1 lns 30-35).

Answer to argument in the Remarks

Applicants point out **Futamato et al** does have no limits on the substrate thickness for a Si single crystal. Si single crystal substrates are in the secondary art - **Lambeth et al**, **Yamamoto et al** and **Takano** - all directed to a magnetic recording medium and these are just admittedly conventional already in use in the recording medium art as further evident in the instant specification, as in page 15 lns 8 to 19:

"Such substrates have been disclosed in Japanese Patent Publication (JP-B) Nos. 142048/89, 2-41089/90, 2-59523/90, 1-45140/89, Japanese Patent Provisional Publication (JP-A) Nos. 57-105826/82, 668463/94, 6-28655/94, 4-259908/92, etc., for example. Among these, a recording medium made by forming a under layer on an Si single crystal substrate and then by forming a recording layer thereon has also been disclosed (Japanese Patent Publication (JP-B) No. 2-41089). It is thus known that a Si single crystal is used as a horizontal magnetic recording substrate."

Applicants have pointed out how the art does not teach the entire range as applicants' however they teach portions within the claimed range encompasses the thickness of the non magnetic and soft magnetic layer claimed as apparently

appreciated by applicants (see also **Futamoto et al** col. 4 lns 47-49, Example 2 and the size range in Fig. 5).

Applicants have contrasted the instant claimed soft magnetic layer having 0.1 - 5 nm while **Futamoto et al** has 5 - 200 nm (paragraph bridging pages 5 and 6 of the Remarks). However the Futamoto et al 5 nm is within the instant claimed range.

"[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)

Applicants have argued **Lambeth et al** and **Futamoto et al** separately do not teach the article of the claims, however the rejection of the claims under **Lambeth et al** and **Futamoto et al** in combination and the examiner has pointed out the motivation for the combination of art in the instant and previous Office actions.

OTHER CONSIDERATIONS

The Declaration under Rule 132 (now 37 CFR 1.132) filed on January 19, 2005 has been carefully considered but is not sufficient to overcome the rejections.

As to Examples of the instant Declaration:

In the instant Declaration the present invention exemplify in Figure 4 it has not been considered commensurate in scope with the subject matter being claimed. For instance the sample illustrated did not purport to even have an average surface roughness (Rms) within that of the claims. Evidence must be reasonably commensurate

in scope with the claimed invention. See, e.g., *In re Kulling*, 897 F.2d 1147, 1149, 14 USPQ2d 1056, 1058 (Fed. Cir. 1990); *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 777 (Fed. Cir. 1983). *In re Soni*, 54 F.3d 746, 34 USPQ2d 1684 (Fed. Cir. 1995).

The photographs showed larger size irregularities in sputter coated sample, Fig. 5, then in the plated sample, Fig. 4, however the magnifications of Fig. 5 and Fig. 4 are dissimilar. Figure 4 was shown with magnification in μm (1×10^{-6} magnification) and Figure 5 in nm (1×10^{-9} magnification). This magnification was not explained and would have been expected to result in the appearance of larger size to the irregularities in the more magnified face. Nor is this a full comparison, there is a lack of details for the comparison especially to evaluate the sputtering, nor are there any particulars as to the plating for the product claimed.

The single sample was too narrow to ascertain the trend that would reasonably extend the probative value required nor is there the requisite evidence of superior properties necessary to establish the non-obviousness of instant claimed invention were there is only a single comparison for a broad range. *In re Clemens*, 622 F.2d 1029, 1036, 206 USPQ 289, 296 (CCPA 1980); *Grasselli*, 713 F.2d at 743, 218 USPQ at 778. When a structure appears identical or only slightly different from the prior art structures the burden of persuasion is on applicants to show that the claimed product exhibited unexpected properties compared with that of the prior art *Ex parte Gray*, 10 USPQ2d 1922 (Bd. Pat. App. & Inter. 1989).

The instant product calls for a product of unspecified plating; "The Patent Office bears a lesser burden of proof in making out a case of prima facie obviousness for product-by-process claims because of their peculiar nature" than when a product is claimed in the conventional fashion. This appears to inherently produce an identical or nearly identical product *In re Fessmann*, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974) and "[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on inherency' under 35 U.S.C. 102, on prima facie obviousness' under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted]." *In re Fitzgerald*, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)).

CONCLUSION

The claims under consideration are 1 and 2.

- No claim has been allowed.

THIS ACTION IS MADE FINAL.

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

INQUIRES

CONCLUSION

The claims are to .

- Restriction has been required.
- No claim has been allowed.
- No Information Disclosure Statement has been received.

INQUIRES

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Louis Falasco, PhD whose telephone number is (571)272-1507. The examiner can normally be reached on M-F 10:30 - 7:00.


Art Unit: 1773

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol D. Chaney, PhD can be reached at (571)272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

212

LF
3/05


STEVAN A. RESAN
PRIMARY EXAMINER